Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Claims 1, 2, 11, 12, 14-28, and 32-35 have been amended. Claims 4, 13, 29, 30, 31, and 37 have been canceled without prejudice. New claims 38 and 39 have been added.

1. (Currently Amended) A method, comprising:

microbending a fiber Bragg grating located in an optical waveguide having a core offset in respect to the cladding with a transverse acoustic wave; ~~and~~

reflecting one or more Nth order sidebands of reflection wavelengths with the fiber Bragg grating to couple a band of wavelengths within an

optical signal from a first mode to a second mode[[.]];

separating the optical signal containing an optical spectrum of wavelengths traveling in a first direction into a forward optical signal and a reflected optical signal;

spectrally shaping the forward optical signal by selectively removing one or more portions of the optical spectrum contained in the optical signal; and

transmitting the transverse acoustic wave to spectrally shape the forward optical signal.

2. (Currently Amended) The method of claim 1, further comprising:

generating the transverse acoustic wave at a first frequency and a first signal strength; and

transmitting the transverse acoustic wave to an optical waveguide having an

interaction region containing the fiber Bragg grating.

3. (Original) The method of claim 1, further comprising:

separating the optical signal traveling in a first direction into a forward optical signal and a reflected optical signal;

routing the reflected optical signal into another optical component; and

transmitting the transverse acoustic wave to route the reflected optical signal.

4. (Canceled)

5. (Original) The method of claim 1, wherein the Nth order sidebands of reflection wavelengths comprises a first order sidebands of reflection wavelengths.

6. (Original) The method of claim 1, wherein the first mode comprises a core mode.

7. (Original) The method of claim 1, wherein the first mode comprises a cladding mode.

8. (Original) The method of claim 1, wherein the first mode comprises a polarization mode.

9. (Original) The method of claim 1, wherein coupling comprises transitioning energy from a first spatial propagation mode to a second spatial propagation mode.

10. (Original) The method of claim 1, wherein microbending comprises approximately simultaneously compressing a first portion of the fiber Bragg grating and straining a second portion of the fiber Bragg grating.

11. (Currently Amended) A ~~The~~ method ~~of claim 2~~, comprising:

microbending a fiber Bragg grating located in an optical waveguide having a core offset in respect to the cladding with a transverse acoustic wave;

reflecting one or more Nth order sidebands of reflection wavelengths with the fiber Bragg grating to couple a band of wavelengths within an optical signal from a first mode to a second mode;

generating the transverse acoustic wave at a first frequency and a first signal strength; and

transmitting the transverse acoustic wave to an optical waveguide having an interaction region containing the fiber Bragg grating, wherein wavelength spacing of the Nth order sidebands of reflection wavelengths is proportional to the first frequency of the transverse acoustic wave.

12. (Currently Amended) A ~~The~~ method ~~of claim 2~~, comprising:

microbending a fiber Bragg grating located in an optical waveguide having a core offset in respect to the cladding with a transverse acoustic wave;

reflecting one or more Nth order sidebands of reflection wavelengths with the fiber Bragg grating to couple a band of wavelengths within an optical signal from a first mode to a second mode;

generating the transverse acoustic wave at a first frequency and a first signal strength; and

transmitting the transverse acoustic wave to an optical waveguide having an interaction region containing the fiber Bragg grating, wherein a percentage of the Nth order sidebands of reflected wavelengths coupled from the first mode to the second mode corresponds to the first signal strength of the acoustic wave.

13. (Canceled)

14. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~11, wherein the fiber Bragg grating is in the core, the core having a center, and the center of the core is offset in relation to a center of the cladding.

15. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~11, wherein the optical waveguide comprises an optical fiber.

16. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~11, wherein the fiber Bragg grating is continuous from a first portion to a second portion.

17. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~11, wherein the fiber Bragg grating includes a first portion and a second portion, the first portion is discrete from the second portion and an interruption of the fiber Bragg grating exists between the second potion and the first portion.

18. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~11, wherein ~~the~~ an acoustic wave exciter generates the transverse acoustic wave and includes an acoustic wave amplifying member, a signal generator, and an acoustic wave generator.

19. (Currently Amended) The method ~~apparatus~~ of claim 18, wherein the acoustic wave amplifying member comprises an acoustic horn.

20. (Currently Amended) The method ~~apparatus~~ of claim 18, wherein the acoustic wave generator comprises a transducer.

21. (Currently Amended) The method ~~apparatus~~ of claim 15, wherein the optical fiber comprises a single mode optical fiber.

22. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~11, wherein ~~the apparatus comprises~~ an acoustical-optical tunable add module performs the method according to claim 11.

23. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~11, wherein ~~the apparatus comprises~~ an acoustical-optical tunable drop module performs the method according to claim 11.

24. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~12, wherein ~~the apparatus comprises~~ an acoustical-optical tunable gain-flattening module performs the method according to claim 12.

25. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~18, wherein the acoustic wave exciter is tunable to select an Nth order sidebands of reflected wavelengths in an optical signal.

26. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~12, further comprising:

an acoustic wave absorber affixed to the interaction region.

27. (Currently Amended) The method ~~apparatus~~ of claim 26, further comprising:

a heat sink affixed to the acoustic wave absorber.

28. (Currently Amended) The method ~~apparatus~~ of claim ~~13~~12, wherein the optical waveguide further comprises a jacket surrounding the core and the cladding and the interaction region comprises a section of the optical waveguide where the jacket is removed.

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Currently Amended) The method ~~apparatus~~ of claim ~~31~~12, wherein the optical waveguide contains a tapered region and the interaction region is located within the tapered region.

33. (Currently Amended) The method ~~apparatus~~ of claim ~~31~~12, wherein ~~the~~ an acoustic wave exciter generates the transverse acoustic wave and comprises one or more acoustic wave exciters cascaded in series along the optical waveguide.

34. (Currently Amended) An apparatus, comprising:

means for microbending a fiber Bragg grating located in an optical waveguide having a core offset with respect to the cladding with a transverse acoustic wave; ~~and~~

means for reflecting one or more Nth order sidebands of reflection wavelengths with the fiber Bragg grating to couple a band of wavelengths within an optical signal from a first mode to a second mode;

means for separating the optical signal containing an optical spectrum of

wavelengths traveling in a first direction into a forward optical signal and a reflected optical signal;

means for spectrally shaping the forward optical signal by selectively removing one or more portions of the optical spectrum contained in the optical signal; and

means for transmitting the transverse acoustic wave to spectrally shape the forward optical signal.

35. (Currently Amended) The apparatus of claim 34, further comprising:

means for generating the transverse acoustic wave at a first frequency and a first signal strength; and

means for transmitting the transverse acoustic wave to an optical waveguide having an interaction region containing the fiber Bragg grating.

36. (Original) The apparatus of claim 34, further comprising:

means for separating the optical signal traveling in a first direction into a forward optical signal and a reflected optical signal;

means for routing the reflected optical signal into another optical component; and

means for transmitting the transverse acoustic wave to route the reflected optical signal.

37. (Canceled)

38. (New) A apparatus, comprising:

means for microbending a fiber Bragg grating located in an optical waveguide having a core offset in respect to the cladding with a transverse acoustic wave;

means for reflecting one or more Nth order sidebands of reflection wavelengths with the fiber Bragg grating to couple a band of wavelengths within an optical signal from a first mode to a second mode;

means for generating the tra<u>ns</u>verse acoustic wave at a first frequency and a first signal strength; and

means for transmitting the transverse acoustic wave to an optical waveguide having an interaction region containing the fiber Bragg grating, wherein wavelength spacing of the Nth order sidebands of reflection wavelengths is proportional to the first frequency of the transverse acoustic wave.

39. (New) An apparatus, comprising:

means for microbending a fiber Bragg grating located in an optical waveguide having a core offset in respect to the cladding with a transverse acoustic wave;

means for reflecting one or more Nth order sidebands of reflection wavelengths with the fiber Bragg grating to couple a band of wavelengths within an optical signal from a first mode to a second mode;

means for generating the transverse acoustic wave at a first frequency and a first signal strength; and

means for transmitting the transverse acoustic wave to an optical waveguide having an interaction region containing the fiber Bragg grating, wherein a percentage of

the Nth order sidebands of reflected wavelengths coupled from the first mode to the second mode corresponds to the first signal strength of the acoustic wave.